

The Use of Portable 40-Watt Ultraviolet Fluorescent Tubes for Attracting Insects

By Dr. RONALD S. WILKINSON *

In two papers published well over a decade ago (Wilkinson, 1966a, 1966b), I described for British entomologists the widespread and well-established American use of 15-watt fluorescent tubes for the attraction of insects. (The British equivalents were: American "BL" or actinic blue, Philips TL 20/05. American "BLB" or black light, Philips 20/08.) For the theory and details of this method of attraction, which requires an ordinary short wall or ceiling fixture, a pair of inexpensive fluorescent tubes, and a DC-AC convertor which may be inserted by means of its accompanying device into the cigar lighter of an automobile or clipped to its storage battery (the convertor I have always used is an American-made Workman Transverter BX125), I refer readers to the extensive discussions cited above.

The traditional procedure, which has been used for many years by American collectors, is to drape a bedsheet over the bonnet and windscreen of one's automobile, and place the 15-watt tube in its fixture in a convenient position on the sheet, usually at the base of the windscreen. Of course numerous variations have been used, with a *waterproof* extension cord and various means of support for the sheet. Before and after my 1966 studies, entomologists have discussed the varying results with BL (unfiltered) and BLB (filtered) tubes, but a conclusive study of relative values has not been published for the general reader, and will not be attempted here.

Since 1967 I have experimented and collected widely with larger fluorescent tubes. The most powerful and successful ones I have used with the aid of my automobile are the 40-watt General Electric ultraviolet BL tubes. These are of greater length (about 113 centimetres) and create a considerably greater radius of luminosity than the small 15-watt tubes. Although attraction to UV is now known to be determined by various factors, it is very obvious from experience that the larger 40-watt tubes attract *many* more moths than their 15-watt counterparts. As might be expected, other orders of insects are also attracted in greater numbers.

The large size of the 40-watt tube when mounted in its fixture makes it somewhat unwieldy, and I have invented my own support for the ones I use (although more mechanically clever readers may devise something better). I attach a horizontal bar to the adjustable support of a home motion picture screen, and the fixture as well as the bedsheet are

* The American Museum of Natural History, New York, New York 10024.

hung from the bar, while the remainder of the sheet as well as a second sheet is placed on the ground. Alternately, in very exposed situations, the fixture may simply be laid on the sheet at the point where it reaches the earth. (The additional horizontal sheet is very useful due to the propensity of various moths to fly in and rest at differing distances from the tube.) The fixture itself is connected to the convertor (which is ideally protected within the car) by a *waterproof* extension cord. By varying the length of the cord and the arrangement of the apparatus, one can adapt to various conditions, and with the 50 or 100-foot cords which I commonly use, the apparatus can be used at a little distance from the roadway or forest path where the car is parked, and it is even possible to collect on a hill or in a nearby ravine.

The automobile I have used in twelve years' collecting with 40-watt tubes is a 1967 Triumph GT-6 sports car, utilising a heavy duty 12-volt battery. Even when using the tube for four hours at a time, as I often do because of the habits of the genus I study, I have never had the slightest difficulty starting the car afterward, and have only replaced the battery three times since 1967. The results have been more than satisfactory, and add to the realisation that an expensive, cumbersome and noisy petrol generator or very small UV lamps, are not always necessary for collection at light in out-of-the-way places, as long as the site is approachable by vehicle. Of course the nature of *my* car makes driving over rough terrain impossible; a traditional car would be more suited to the method, but at least it has been proven over a satisfactory length of time that large tubes can be used in British vehicles with success and without fatal battery drain which might otherwise leave the collector stranded far from home.

In a comment on one of my previous papers, Heath (1966) envisioned a possible danger: "the ordinary fluorescent wall or ceiling fittings are quite unsuitable for use in the field and could be dangerous as they do not conform to the safety requirements for this type of use." I suppose it is theoretically possible that one could accidentally receive a shock from this equipment, for example if it were unshielded and carelessly used in a rain shower. However, the method has been used in the United States for so many years without a single accident known to me or to any of the numerous American lepidopterists I have queried since Mr. Heath's comment, that I suspect the much greater danger to be that of driving to and from the site. In fact, the only distress encountered by American users of ultraviolet equipment is its propensity to attract visitors other than insects. Because of this, every U.V. veteran has had his encounters with curious farmers and others, including police (Wilkinson, 1978). In cases of precipitation, one has only to cover the equipment.

Although I cannot suggest British sources for the large

tubes I have used with such success, I can at least report their use as a matter of record, and hope that vendors of similar equipment might be found in the U.K.

References

- Heath, J. 1966. Fluorescent 'blacklight' lamps for collecting insects. *Bull. amat. Ent. Soc.* 25: 95-96.
 Wilkinson, R. S. 1966a. Some American 'blacklight' attractors for collecting insects. *Bull. amat. Ent. Soc.*, 25: 24-28.
 ———. 1966b. Further remarks on American 'blacklight' attractors. *Bull. amat. Ent. Soc.*, 25: 93-95.
 ———. 1978. Still more hazards of moth hunting. *Entomologist's Rec. J. Var.* 90: 53-54.

Notes and Observations

INSECTS FROM CORNWALL, INCLUDING APPARENTLY THE FIRST CORNISH LULWORTH SKIPPER. — In the second half of July 1979 I spent two weeks with my son's family in a bungalow on the south coast of Cornwall, a quarter of an hour's walk east of the picturesque village of Polperro. This was of course not an entomological trip. Moreover the weather conditions were not always favourable. Yet I could climb several times the path in the direction of the village of Talland and collected or noted what I saw. I suspect that this part of Cornwall is seldom visited by an entomologist and therefore I give a list of the insects caught or observed.

LEPIDOPTERA. Zygaenidae: *Zygaena filipendulae* (Linnaeus), several. Gracillariidae: *Callisto denticulella* (Thunberg) (A. M. Emmet det.). Pyralidae: *Crambus perlella* (Linnaeus), *C. nemorella* (Hübner), *Agriphila tristella* (Denis & Schiffermüller), *Galleria mellonella* (Linnaeus). Pterophoridae: *Stenoptilia bipunctidactyla* (Scopoli). HesperIIDae: *Thymelicus sylvestris* (Poda), *T. acteon* (Rottemburg), a fresh male, as far as I know the first capture in Cornwall. Lycaenidae: *Polyommatus icarus* (Rottemburg), a very few. Nymphalidae: *Vanessa atalanta* (Linnaeus), only two. Satyridae: *Pyronia tithonus* (Linnaeus) not uncommon, *Maniola jurtina* (Linnaeus) the only really common species, *Melanargia galathea* (Linnaeus), one close to Polperro. Geometridae: *Idaea aversata* (Linnaeus), *Xanthorhoe montanata* (Denis Schiffermüller), *X. fluctuata* (Linnaeus), *Scotopteryx chenopodiata* (Linnaeus), *Epirrhoe galiata* (Denis & Schiffermüller). Noctuidae: *Xestia triangulum* (Hufnagel), *Cucullia chamomillae* (Denis & Schiffermüller), a few caterpillars on *Matricaria inodora* L. (Feverfew), *Cryphia domestica* (Hufnagel), *Autographa gamma* (Linnaeus), only a few. The most interesting capture is of course *Thymelicus acteon*, far outside the known British range of the species. Although the Buddlejias were in full flower, I never saw a butterfly or moth on them.

OTHER INSECTS. DERMAPTERA: *Forficula auricularia* Linnaeus. one larva. HOMOPTERA. Aphrophoridae: